NOTE ON THE BEHAVIOR OF THE ZINC LINES IN CERTAIN STELLAR SPECTRA

Russell has called attention to the bearing of the theory of ionization on the weakening of the zinc lines in the spectrum of sun-spots. The ionization potential of zinc is high, being 9.4 volts for first-step ionization. Accordingly the lines of zinc are weakened in passing from the higher temperature of the Sun's reversing layer to the lower temperature of sun-spots.

An examination of spectra of *Sirius, Procyon,* and *Arcturus* taken with high dispersion indicates results in agreement with the theory of ionization. The lines of the zinc triplet in the blue, $\lambda\lambda$ 4680, 4722, and 4810, when compared with neighboring arc lines of iron, show their greatest relative intensity in *Sirius,* are prominent in *Procyon* and become somewhat less strong in *Acturus* than in the solar spectrum. This progression is in conformity with the progression in the temperatures of these stars.

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THE PARALLAX OF β G. C. 4414

One of the most serious outstanding differences between the spectrographic and trigonometric parallaxes given in the list of 1646 stars[1] is that for the star C 955 = β. G. C. 4414 = Lal. 15743. ($\alpha = 7^h\ 58^m.8$, $\delta = +12^\circ\ 35'$, 8.6 Ko). In checking the results for this star it was found that an error in its position in our observing books was responsible for the fact that B. D. $+12^\circ 1762$ = H. D. 66637, ($\alpha = 7^h\ 59^m.4$, $\delta = +12^\circ\ 29'$, 8.5, Ko) was really taken instead. Exposures made with the corrected position show that β. G. C. 4414 AB has the spectrum of a dwarf star with absolute magnitude estimated to be 5.9, and type G 9. It is a triple star composed of a close pair of equal stars of combined magnitude 7.9 and a third star of 10th magnitude at a distance of 5″. The proper motion is 0″.141. Using 8.6 as the apparent magnitude of each of the two brighter stars we find the parallax to be 0″.029. The trigonometric parallax determined at the Sproul Observatory is 0″.088, and two values for the hypothetical parallax calculated from the elements of the orbit are 0″.069 and 0″.051.

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[1] *Mount Wilson Contribution,* No. 199; *Astrophys. Jour.,* **53,** 13, 1921.